THE BOSTON
MEDICAL AND SURGICAL JOURNAL.

VOL. XCVIII. — THURSDAY, MAY 30, 1878. — NO. 22.

A PECULIAR CONDITION OF THE CERVIX UTERI WHICH IS FOUND IN CERTAIN CASES OF DYSTOCIA.[1]

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THE above subject is not a new one to this society. At the regular meeting in February last attention was called to it by a paper which was afterwards presented to a larger audience in the pages of the JOURNAL, March 21, 1878. It is now brought forward again for the purpose of considering, firstly, the relation existing between the condition in question and the ordinary post-partum hour-glass contraction; secondly, the cause of the extraordinary difficulty which, in all the cases reported, presented itself to the accoucheur; and thirdly, the proper treatment of such cases. It was in November, 1876, that this subject received its first introduction and imperfect definition among ourselves by the relation of a case which was designated as one of ante-partum hour-glass contraction of the uterus. At that time the reporter understood neither the true state of things in the case then detailed, nor the exact nature of that with which it was compared. It was assumed with perfect propriety, as it now appears, that an identity existed; yet there was an imperfect appreciation of the individual cases, each of which was marked by the same exceptional features. And when a new anatomy and physiology of the womb brought an explanation of a certain fearful irregularity in labor, it was at first supposed that the descriptive title of the original communication implied a serious misnomer. On the contrary, the correctness of that title is fully affirmed by the latest words that obstetric medicine has spoken. Upon this point it is only necessary to cite the opinion expressed by Playfair, and already quoted in the first paper. To such testimony none can object. But in this connection we would note a curious fact, and admit the force of the evidence that proves the irresistible power of tradition, which may be defined as the habit of the human race in thought and action. Upon the very same page this writer clearly states the parts that are played by the internal os and the elongated cervix in the production of an hour-glass contraction, and represents that condition by an illustration which

[1] Read at the meeting of the Obstetrical Society of Boston, May 11, 1878.

can scarcely be distinguished from that used by Ramsbotham in his elaborate work, the preface to which is dated in 1841, thirty-five years before Playfair, by the publication of a systematic treatise on midwifery, sought a position among obstetric authorities. In that illustration the constriction is midway between the os and the fundus; the two cavities are the same in shape and capacity, and their walls are of equal thickness. If not overlooked, this contradiction and inconsistency must lead the thoughtful man to careful reflection, and even if he is not fully convinced of the necessity of laying aside the view that has been so long taught and accepted, he at least will enjoy the benefit that comes of being unsettled in doubt instead of fixed in error. But it is to be feared that the wood-cut, with the advantage of making the first impression upon the attention, will still take precedence of the text, and continue to work mischief by perpetuating an idea which has hitherto misrepresented a fact in science. It appears, then, that the following statement embodies the most reliable conclusions that have been reached in this connection: There is a condition of the uterus which may be found before as well as immediately after the completion of labor, and in which, by reason of a disproportionate contraction of the internal os, a constriction is produced which divides the organ into two cavities, the upper one being contained in the body of the womb, and the lower one formed by an elongation of the cervix. The relative capacity of these two cavities is not a constant ratio.

From what is known of the distribution and arrangement of the uterine muscular fibres it almost seems as though it might have been inferred, *a priori*, that it is only at the internal os that it would be possible to have a constriction so limited in extent, so distinctly defined, and so symmetrical as the one that has been described.

This attempt to explain these cases of dystocia will regard the deformed and laboring uterus as an inseparable and, in its position above the pelvic brim, as an immovable part of the body, forming like the pelvis itself a portion of the *terra firma* of the patient. It may be well to remember that the uterine action instead of producing a progressive descent of the fundus, and thereby bringing it nearer to the external os uteri, separates the two ora, approximates the internal os to the fundus, and leaves the latter very nearly if not quite at its original level.

In the search for a cause of the difficulty in question, we naturally ask to what extent it may have depended on pelvic malformation. This condition undoubtedly contributed its share in the cases of Drs. Stone and Arnold. But in Cases III. and IV. nothing of the kind was recognized, and thus they confirm the views of Bandl, who maintains that this extraordinary state of the cervix is found only when the deviation from the normal dimensions is extremely slight, so that the fœtal head, without being absolutely excluded, is not able to engage fully in

the superior strait. The degree of contraction which he has in mind might easily be overlooked, and certainly falls very far short of reaching that narrow diameter which authorities have fixed as the minimum that will permit the passage of a child with or without instrumental assistance.

The solution of the problem must be sought elsewhere; it must prove to be the expression of some physical or physiological law, and will be found in the relations existing between the fœtus and the different portions of the uterus. Firstly we will consider the agency of the cervix. With a given amount of material, distributed in any form, that of a hollow cylinder for instance, any variation of one of its dimensions must be accompanied by a compensatory change in some other dimension, assuming the density to be constant. The application of this fact to my present purpose is admirably illustrated by the operation of a plaything called a finger-trap, the product of Japanese ingenuity. It consists of a cylinder of basket-work, made of strips running in a spiral direction, and of loose texture, so that the ratio between its length and its diameter can be made to undergo a very considerable change. If the finger is pushed into it, a little friction is advantageous, for the reason that it makes the trap a little shorter, and thereby gains a little space in the transverse sense. The finger once placed, the slightest effort to withdraw it elongates the cylinder, and produces a corresponding diminution in the diameter, and the unfortunate member is held with a firmness which is directly proportional to the amount of tractive force that is applied to it. To pull it out is scarcely possible, but it can easily be released by a very obvious and simple manœuvre which deals directly with the trap.

In the cases, the difficulty of which we are trying to explain, the head and more or less of the trunk of the child are inclosed in a hollow cylinder of living tissue, which is endowed with certain physical properties, so that the pressure upon its contents which depends upon transverse tension is directly proportional to the amount of elongation. The use of the forceps as an instrument of traction must tend to elongate the cervix, especially in those cases in which the lips of the external os are found in advance of the head and within the superior strait. The accoucheur is virtually and ineffectually pulling against himself, for the secondary effect of his effort is to increase the strength of the grasp with which the cervix holds the fœtus, and thus to make progress impossible. Uterine action, whether spontaneous or induced by the manipulations of the obstetrician, leads to precisely the same result. By adding to the length of the cervix it tends to shorten its diameters, and fixes the child more firmly than ever in its abnormal relations. The muscular power of the womb is the active factor in the production of the deformity in question, and if we consider the point upon which

it makes its first impression it will be evident that the tenuity and tension of the cervical tissue will find their minimum at the external os and their maximum near the internal os. It is not the head, therefore, but a portion of the child's body that will be held with the greatest force. It may be objected that such is the character of the fœtal and intra-cervical surfaces, and such the facility with which one must move upon the other, that our theory is invalidated. The answer is that in no longitudinal section of a child are the outlines parallel, and that irregularities of surface are well marked, and furnish a sufficient number of points of resistance. Farther, no matter how smooth or well lubricated two surfaces may be, they can be maintained in contact with such force that the friction produced will seriously interfere with all motion.

Now let us ask if the internal os is responsible for any portion of the difficulty under consideration. As it forms the substance and sharpness of a prominent constriction which makes a startling impression upon the hand which, without previous knowledge, touches it for the first time, it is possible that it has been spoken of with too strong an emphasis, and that in some cases an undue importance has been attached to it. In Case I., in which the condition of the uterus was perfectly typical, the internal os, in its contraction, seemed to grasp and hold the fœtal pelvis like an enormous sphincter, which might reasonably present a certain obstacle to the successful exertion of force applied through the parturient passages, and thus embarrass the operation of extraction. If it is capable of thus acting with any considerable influence, it might at first seem to be an easy matter to draw it down to the brim of the maternal pelvis. But the cervical wall, although attenuated and in itself soft and flexible, cannot be rapidly shortened unless it is folded upon itself by being thrown into transverse wrinkles, and this process involves a change in some of the various diameters of the cervix. That dimension cannot be lessened at any point by reason of the contents of the cavity, and it cannot be increased, for the canal is practically stretched to its utmost. In mechanics the strength of material is intimately connected with the permanence of particular forms, with or without relation to vertical and horizontal lines. So the uterine neck may stand like a tubular brace, abutting against the pelvis below, and above maintaining the internal os in its position against any tendency to move downwards.

Whatever may have been the share contributed by the internal os to the difficulty in the case (I.) alluded to, it would seem — and this judgment is based only on clinical reports — that there are instances in which its agency is plainer and more potent. In the patient observed by Dr. Adams the fœtal head was contained in the cavity of the cervix, and was there delayed less for reasons contained in that portion of the foregoing explanation which attempts to estimate the influence and mode of action of the uterine neck, than on account of the immobility deter-

mined by the internal os, which, contracting about the neck of the child, held it with a grasp that was Titanic as well as tetanic. And thus a segment of the muscular portion of the womb, which normally possesses no such unyielding and invincible rigidity, may obstruct labor precisely in the same way as would be done if, after the birth of the head, the two branches of the pubic arch, each in its whole length, should be extended towards the median line, so far and in such a way as to leave between them, just beneath the symphysis, only sufficient space for the fœtal neck. Then we must recognize two classes of cases; in one[1] the constriction encircles the child at a point just in advance of the shoulders, where it is firmly held; and in the other it has allowed the shoulders to pass through it, so that it is free to move backward along the trunk, and thereby facilitates the exaggeration, to such surprising degrees, of that elongation of the uterine cervix which, within certain limits, is a portion of the process of normal labor. Whatever theory may be ultimately accepted by science in explanation of this particular form of dystocia, it will be of secondary importance and of little practical use unless it shall point out a method of management which does not carry intrinsic dangers, and shall not consist simply in changing the time and manner of the mother's death, not to speak of the almost hopeless prospect of the child.

In here opening the discussion of the question of treatment little can be done beyond setting forth some of the details of the eleven labors which, by report or reference, were alluded to in the other paper, and making a careful study of them in their relation to the ordinary resources of obstetric surgery. For a very obvious reason we inquire first as to the efficiency and value of the forceps. We find that in nine cases this instrument was resorted to before any other means of artificial delivery, and that in them all it failed to accomplish anything. In one instance, that of a second labor, no attempt was made in this direction, apparently because it had proved to be useless in the first confinement. In another case (III.), that of a woman who died undelivered, although the notes in my possession do not distinctly state what was done, there can be no reasonable doubt that the forceps found a first place among the several unavailing expedients. These facts must incline us very strongly to the conclusion that in these cases it is use-

[1] Well described by an American authority, now almost forgotten, although eminent in his own day, and generously endowed with that common sense whose value can never depreciate. His method of treatment was by blood-letting. He says, "It is the only remedy with which I am acquainted that has a decided control over the contracted uterus; it is one almost certain of rendering turning practicable under such circumstances if carried to the extent directed. A small bleeding in such cases is of no advantage, for, unless the practitioner is determined to carry it to its proper extent, which is a disposition to or the actual state of syncope, he had better not employ it." He insists upon the importance of producing the desired effect economically and without unnecessary waste of the forces of the patient. (A Compendious System of Midwifery, eighth edition, 1837, by William P. Dewees, M. D., page 250.)

less to undertake to deliver women with the forceps. And this conclusion is sustained by theoretical considerations if the relations between the fœtus and the different portions of the uterus are such as have been suggested. But simple uselessness may not be the worst feature of this mode of interference. Professor Breisky (Bern) declares that "in manipulations designed to facilitate the delivery of the head situated high up it will be necessary to bear in mind that as it comes down it may remain fast in the dilated cervix, in which case severe traction may prove dangerous."

Next concerning the operation of version, since that, offering for the child some degree of safety, would naturally take the second place. In six of the ten cases in which it was attempted it proved to be an impossibility, while in the other four it was the means of terminating the labor. Of these four two were fatal, and the other two, in each of which both mother and child were saved, contain all that can be urged in its favor. But the facts would have a larger significance if they were derived from different patients instead of representing two labors in the same woman. In addition to the probability of failure, which clinical experience seems to have established, there are other most cogent reasons for looking with suspicion upon this measure. Bandl has shown how the mere introduction of the hand may overcome the tensile strength of the cervical wall, and produce a lesion no less grave than rupture of the uterus. We cannot doubt that the accoucheur who is resolved upon version will be induced to exercise an amount of force which almost deserves to be called brutal, and which may easily result in that degree of shock and depression from which the female of average reactive power cannot recover. I should not dare to repeat the energetic efforts which, upon an occasion already described, were made with my approval and assistance. Any perseverance that may then have been exhibited must not be mistaken for courage; the latter quality is needed only when there is an intelligent sense of danger.

In seven cases in which craniotomy was resorted to, in four only did it determine the extraction of the fœtus, so that there is no large percentage of success, taken in the limited sense of delivery, to recommend this operation. Yet it is but fair to state that the four mothers were all saved. In condemnation of this method stands the inevitable destruction of the child.

There is a curious numerical relation between the results obtained in the craniotomy cases and those presented by the series as a whole. On the one hand, seven labors included fourteen lives, of which four were saved, and the mortality was a little more than seventy per cent. On the other, eleven labors included twenty-two lives, of which nine were saved, and the mortality was fifty-nine per cent. But all lives are not of equal importance. The child, when judged by the maternal standard, has only a fractional value.

Should evisceration be proposed, it is only necessary to remark that it is open to objections which lie against other methods that have been considered. The subcutaneous injection of morphine, venesection, and chloral have been suggested to me by letter or in private conversation. Although my present impressions do not incline me hopefully towards either of them, it is possible that future experience will be able to define the conditions under which each one may have a useful and successful application.

It remains only to discuss the propriety of resorting to Cæsarean section as a remedy for this form of difficult labor. The lamentable and unsatisfactory results which I have been forced to present as associated with the ordinary methods of obstetric interference demand a careful study of any procedure, however unusual and exceptional, which has ever assured the safety of life in the lying-in chamber. We must make a discrimination between those measures which, *per se*, determine death and those which fail to prevent it. The peril of this operation must not be estimated by the number of women *per centum* who have died after it, and upon some of whom it has been performed under circumstances of such exhaustion and depression that no other result could be anticipated. We can obtain a much more accurate idea of its intrinsic dangers from the mortality which is found in the statistics of ovariotomy, although at present it is impossible to arrive at a conclusion which can boast of any considerable exactness. Many women have survived it; some even have not found its repetition to be fatal. Of it Dr. Thomas says: "I am perfectly willing to admit that many cases in which craniotomy has been resorted to in the past would have been more appropriately treated by this operation, and, as I firmly believe, that in the future the Cæsarean section will be more frequently resorted to and with better results." Radford is persuaded that "the risk to infants in Cæsarean births is not much greater than that which is contingent on natural labor, provided correct principles of practice are adopted." And as having a direct bearing upon this question is the opinion of Playfair, who, in speaking of the treatment of uterine rupture, with escape of the fœtus, allows us to infer that with gastrotomy "the chances of recovery are at least three or four times as great as when the more usual practice is adopted."

With the support of such testimony, and in view of the uselessness of forceps, the difficulties and dangers which attend all attempts at version, the grave objections which array themselves against craniotomy and evisceration, and above all the terrible mortality which we have observed, it seems to me that whenever this peculiar condition of the cervix has been developed it is the first duty of the accoucheur to terminate the labor by abdominal section. The importance of an early recognition of the uterine deformity is in close relation with the necessity of immediate interference, to the absolute exclusion of the expect-

ant method. Let the mother, the child, and the obstetric art have the advantage of dealing with the full measure of vital power on the part of the patient. The directions which are given in the books for doing the operation imply a vertical incision in the body of the womb. In our special case there are obvious reasons why the opening should be made in the neck. It is possible that a transverse cut would be better than the ordinary one.[1] It would allow the anterior portion of the cervix to shorten itself at once, and thus would bring some relief to the pressure which holds the fœtus with such tenacity. As the elongation is abnormal, while the transverse distention is only natural, the subsequent contraction of the tissues would more completely close the wound made crosswise, whether its edges were brought in apposition by sutures or not. A certain assistance might also be obtained afterwards from the descent of the uterus into the pelvis.

But Cæsarean section is not the only operation which delivers the child through an artificial passage in the abdominal wall. In a paper[2] from which we have already quoted, Dr. T. Gaillard Thomas describes the process of gastro-elytrotomy, and sets forth the advantages which he believes it to possess over the more ancient mode of approaching the uterine cavity from above the pubes. In this procedure delivery is effected through an opening made at the vagino-uterine junction, which is reached, without wounding the peritonæum, by means of "an incision extending from the spine of the pubis to the anterior superior spinous process of the ilium." Whatever may be the safety and facility which constitute the recommendation of this operation, the question inevitably arises as to the degree of danger that there will follow it a tendency to hernial protrusion which cannot be conveniently and effectually counteracted.

I do not forget how large a proportion of the theoretical element enters into some of the views that have been advanced, and thereby impairs their value. If they are correct, the testimony of other observers will confirm them. But if they are unsound, let them provoke such criticism and move to such investigation as shall expose their weakness and assist obstetric science to take at least one step more in the direction of the truth.

Hereafter let every practitioner remember what agents of discovery he has in his own hands if applied to the abdomen of the pregnant woman under the guidance of modern instruction. In each case of retarded labor let him bear in mind the possible existence of an elongated cervix, and seek for it in that manner which can cause in the parturient little inconvenience and no shock, namely, external palpation. Should misfortune compel him to confront one of these terrible cases, let him

[1] This suggestion has no reference to those cases in which the internal os is so firmly and closely contracted around the child's neck.

[2] American Journal of Obsetrics, vol. iii., page 125.

study it carefully with reference to any previous diseased or unnatural condition of the uterine neck, and any existing deformity of the pelvis, however slight, and also in relation to such treatment as may be instituted. And if a still greater misfortune should render null and void all his efforts, and if death should be the fate of his patient, let him not fail to bring to this subject the benefit of necroscopic scrutiny; let post-mortem observations and experiments aid us with suggestions that have a better origin than hypothesis, and enrich us with some well-established facts.

A NEW APPARATUS FOR FRACTURES OF THE LEG.[1]

BY T. B. CURTIS, M. D.

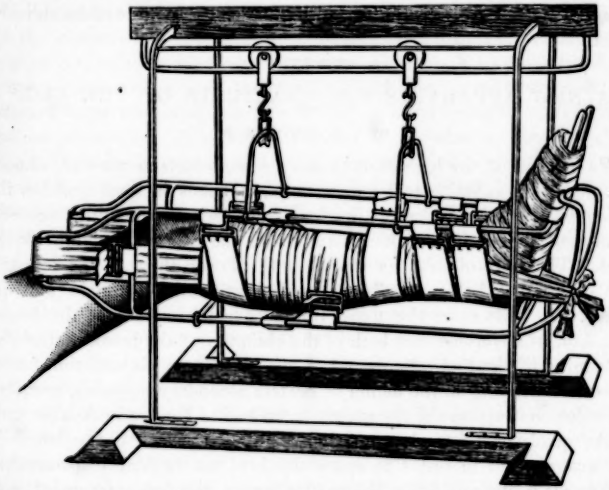
FRACTURES of the leg are often easy enough to take care of, almost any apparatus sufficing to keep the broken bones in good position till union is effected. Occasionally, however, serious difficulties are encountered. Such is particularly apt to be the case with oblique fractures. These are often situated within the lower third of the leg, the line of fracture being usually directed downwards, forwards, and inwards. In such cases the upper fragment rides in front of the lower one, and, as a consequence both of the obliquity of the break and of the shortening of the limb, the extent of the overlapping is sometimes considerable. Owing to the action of certain secondary agencies, namely, muscular contraction (of the muscles attached to the tendo Achillis and of the quadriceps femoris) and the weight of the foot, if the latter is left unsupported in order to spare the heel, an angular displacement backwards is often added. When this occurs, the lower fragment, engaged behind the overlapping upper one, exerts upon the latter a powerful leverage, the effect of which is to pry its lower extremity forwards against the skin. So forcible and persistent is the pressure exerted in this way that sometimes the sharp, chisel-like end of the upper fragment finally perforates the overlying integument.

To overcome all the difficulties caused by this displacement various devices have been resorted to, among which may be mentioned the following: section of the tendo Achillis, suggested by Laugier to annul the action of the muscles of the calf; Malgaigne's pointed screw, to repress the projecting upper fragment; Pott's splint, the object of which was to relax the muscles by flexion, while injury to the heel was avoided by laying the limb on its side.

By means of the apparatus here represented, I believe that the indications usually presented in oblique fractures of the leg, simple or compound, are satisfactorily met. It consists mainly in a frame-work of strong iron wire (of calibre 20 Charrière) so bent to and fro as to

[1] Shown before the Boston Society for Medical Improvement, January 14, 1878.

make a sort of skeleton fracture-box, with four longitudinal wire splints, and a foot-piece inclined at a proper angle. The wires are connected by sliding cross-bars, which give firmness to the entire frame-work. The two upper cross-bars serve to suspend the apparatus in a Salter's cradle by means of two pairs of pulleys, and are curved so as to allow the lower pair of pulleys to travel transversely through an arc of about thirty degrees. The limb is thus allowed to find naturally its position



of greatest ease, which is an attitude of slight rotation outwards. The object of this arrangement[1] is to avoid consolidation with inversion of the lower fragment and foot, a result which is sometimes found to have occurred when the foot has been kept vertical in a fracture-box throughout the treatment. Free antero-posterior motion is obtained by means of another pair of pulleys traveling back and forth along the longitudinal wire at the top of the cradle.

Adhesive-plaster extension is provided for in the following manner: at the upper end of the frame, on either side, are projecting arms, formed of loops of wire, on the vertical portions of which, as axes, rotate a pair of upright spools of hard rubber, five inches apart. The counter-extension strips of adhesive plaster are reflected around these spools, and thence pass downwards to a pair of buckles, by which they can be drawn tight. The extension strips, on the other hand, are fastened around the lower end of the frame, below the foot-piece.

[1] Since writing the above remarks I have seen a description of a somewhat similar contrivance for suspension, devised by Dr. Geo. A. Van Wagenen. See the New York Medical Record, 1873, page 145.

The limb, secured by the tightened strips of adhesive plaster and by the foot-piece, without pressure upon the heel, occupies the axis of the frame-work. Accurate coaptation is then effected and maintained by means of strips of bandage suspended to the wire splints by as many pairs of buckles with S-shaped attachments. In default of the latter, strong pins might perhaps suffice to fasten the bandages to the wires. The leg, exposed to view on all sides, as shown in the wood-cut, is thus supported at various points, and any tendency to displacement of either fragment in any direction is readily recognized and obviated. If the upper fragment, for instance, is seen to project forwards, as is so often the case, it can be effectually restrained by means of a strip of bandage buckled on to the two lower wires in such a manner as to exert direct downward pressure upon the protruding fragment. The position of this strip should be slightly varied from day to day, to avoid the ill effects of long-continued pressure on one spot; and if necessary a short coaptation splint, properly padded, can be applied to the limb underneath the strip of bandage. By this simple means the displacement for which Malgaigne devised his pointed screw is effectually prevented. If, on the other hand, the fragments show a tendency to become displaced inwards or outwards, they can easily be kept in proper position by means of bandages so arranged as to exert lateral pressure at any point in either direction.

Such is the apparatus and its mode of application. This use of four wire splints surrounding the limb on all sides without being in contact with it or concealing it, and controlling the fragments by means of semi-encircling loops of bandage, is, so far as my knowledge goes, a novelty. The apparatus proved successful in two cases in which it was applied by me at the Necker Hospital in Paris, when *interne* under Professor Guyon in 1872. Both were cases of compound fracture, which had been doing badly in wire *gouttières*. Both began to get well as soon as the limbs were placed in this apparatus, which, however, did not then comprise extension by adhesive plaster, the limb being supported by a posterior wire splint.

Suspension I believe to be a valuable means of treatment, insufficiently utilized by the profession. When the injured limb is immobilized, anchored, as it were, to the bed, in a heavy fracture-box, every displacement of the patient's body is directly transmitted to the upper fragment, while the lower one must perforce remain motionless; the former, impelled from above as the patient sinks towards the foot of his bed, is forcibly driven downwards over the latter. Moreover, with every slight movement, be it only a cough or a sneeze (as may be seen by watching the exposed ends in a compound fracture), the sharp end of the upper fragment is kept digging at the superjacent skin, until perforation sometimes ensues. But when the leg swings freely, the

upper fragment cannot move independently of the lower one; the entire limb sways back and forth, without any motion taking place between the broken ends, whose relations remain undisturbed however restless the patient may be. He can thus be allowed some liberty of motion, so that his position is much less irksome than it is when his broken limb is kept motionless, with the expectation that he will remain so likewise. This is, however, not the only way in which suspension is of benefit. It also serves a useful purpose by keeping the limb flexed, whereby the muscles of the calf are relaxed, and the liability to angular displacement with projection of the upper fragment forwards is counteracted. It is true that flexion at the knee only would increase the tendency of the anterior muscles of the thigh, acting through the ligamentum patellæ, to raise the upper fragment, but the accompanying flexion at the hip-joint, by which the quadriceps femoris is relaxed, fully compensates for this unfavorable action. For these reasons a position of flexion at both knee and hip, as in Pott's method of treatment, seems preferable to the straight or extended position.

Extension by means of adhesive plaster is resorted to in this apparatus; rather, however, for the sake of the additional support which is thereby afforded than with the idea of diminishing the extent of the overlapping by drawing down the lower fragment. It must often be extremely difficult, if not impossible, to elongate the shortened limb by this means, for, when extending and counter-extending strips of plaster are so arranged as to pull against each other through an intervening patch of tightly-stretched skin, each must be effectually antagonized by the other. It can hardly be possible to draw down the lower fragment by this means,[1] unless each segment of the broken limb is firmly grasped by circular strips of plaster, prevented from slipping by resting upon bony prominences (malleoli, condyles). Such circular constriction must often be out of the question, especially in compound fractures, where the vulnerability of the soft parts is greatly increased.

In compound fractures this apparatus seems to offer some advantages. The strips of bandage can be so arranged that the wound remains readily accessible for changes of dressings, and, if soiled, they can be removed or changed singly, with little or no disturbance of the limb. If necessary the wound can be laid bare and thoroughly washed, a basin being placed beneath the leg.

My chief object in publishing this description of my apparatus has been to call attention to the resources afforded by a new form of wire frame-work taking the place of a fracture-box. Such a frame can readily be made by a smith, at little cost, from the design of the surgeon, and with a few pulleys and buckles, or perhaps pins, can be made to fulfill all the complex indications of a difficult case. If a Salter's cradle

[1] See F. H. Hamilton on Fractures and Dislocations, fifth edition, 1875, page 496.

be not at hand other means can be employed for suspending the frame, such as the gallows devised by Dr. Van Wagenen,[1] or, better still perhaps, the ingenious contrivance for suspension lately described by Dr. Wm. D. Robertson,[2] in which a really efficient means of extension seems to be provided.

RECENT PROGRESS IN PATHOLOGY AND PATHOLOGICAL ANATOMY.[3]

BY R. H. FITZ, M. D.

PATHOLOGICAL ANATOMY.

Regeneration of Nerves. — Gluck[4] has recently conducted a series of experiments with reference to the healing of nerves after they have been cut. The sciatic nerve of fowls and the pneumogastric of rabbits were exposed and cut through, the results of the operation depending upon the subsequent relation of the cut ends to each other.

Immediately after the section was made the nerve fibres projected beyond the retracted sheath, and the myeline escaped. The cut ends were united during the next few days by a grayish-white, translucent tissue. If a considerable portion (one centimetre or more) of the nerve was removed, the intervening gray tissue became converted into a dense fibrous callus, no regeneration of the nerves occurred, permanent paralysis resulted, and the animals died during the subsequent five months. When, however, the cut ends were closely united, without the removal of a portion of the nerve, the results were quite different, being the more favorable the less the displacement. In certain cases where the nerve was simply perforated, longitudinal rows of fusiform cells, surrounded by abundant homogeneous intercellular substance, were found within seventy-two hours after the operation. These bridged over the interval between the cut ends, sometimes extending from a central to a peripheral fibre. After eight days the ends were united by non-medullated nerve fibres, which slowly and gradually became thicker.

When the nerve was wholly cut across, and the ends united by sutures, the healing process took place in a similar manner, more time being required. Within eighty hours after the operation the wound was closed by a gray granulation tissue, in which, within a fortnight, spindle cells arose, apparently from the nuclei of the neurilemma, and served to

[1] Medical Record, 1873, page 145. F. H. Hamilton on Fractures and Dislocations, fifth edition, 1875, page 492.

[2] See the JOURNAL, May 23, 1878, page 662.

[3] Concluded from page 670.

[4] Virchow's Archiv, 1878, lxxii. 624.

unite the cut axial fibres. A differentiation into axis-cylinder and myeline apparently took place later within these cells.

The author considers that the newly-formed fibres arise from these large granular spindle cells, which are to be regarded as of new formation rather than as outgrowths from preëxisting fibres. They resemble ganglion cells rather than those of connective tissue.

The results of the histological examination were confirmed by physiological experiment, the time of the return of the function to the nerve trunks corresponding with the appearances observed under the microscope.

Diagnostic Value of Epithelium in Sputa. — Since Buhl, in 1872, declared that acute miliary tuberculosis and cheesy pneumonia could be diagnosticated by the microscopic examination of the sputa before evidences of solidification could be obtained by auscultation and percussion, numerous observers have directed their attention to this subject. The results in the main have been corroborative of the statement of Buhl, although Fischl has maintained that the sputum from a simple catarrh did not differ from that occurring in phthisis. Heitler[1] has therefore endeavored to ascertain whether forms of epithelium are to be found in the sputa from diseases of the lungs terminating in phthisis which do not occur in those pulmonary affections not ending in this disease.

His results have been wholly negative, and he further maintains that it is not always easy to determine whether the epithelium found in various affections of the lung is to be considered as coming from the alveoli. In this respect he agrees with Fischl, who states that epithelium from various parts of the respiratory tract resembles that coming from the alveoli. The only forms which are wholly characteristic of their place of formation are the large pavement cells and the ciliated epithelium. All other varieties may come from different parts of the tract, and may become so altered after being detached that their original form is no longer to be recognized, just as is the case with cells found in the urine.

Attention is called to the greater quantity of epithelium in the sputum from certain cases than in that from others. In abundantly purulent sputum the epithelium is often scanty, while again sputum may be found composed almost wholly of large, round, or angular fatty degenerated epithelium, the pus corpuscles being exceedingly few. The latter variety was present in a case of chronic bronchial catarrh occurring in an otherwise healthy individual. The so-called alveolar epithelium was also observed in a case of pulmonary œdema; at the autopsy, however, the parenchyma of the lung was found to be quite healthy. In many cases of infiltration of the apices these epithelial cells were quite numerous, while in others they were absent. They might even be quite abundant on certain days, while in the same case they were wanting at other

[1] Wiener medicinische Wochenschrift, 1877, xlix. 1185.

times. In such instances there seemed to be no relation between their amount and any evidence of a change in the process taking place in the lungs.

As a catarrhal inflammation of the bronchial mucous membrane is a frequent associate of diseases of the parenchyma of the lungs, it therefore follows that the presence of the epithelium in the sputa may be due to the former, but this catarrh may be quite independent of disease of the lung. Heitler is therefore inclined to lay the greatest stress upon this catarrh as producing the various forms of epithelium in tuberculosis, and sees herein an explanation for the greater predominance of the epithelium in certain cases and its absence in others.

Endocarditis from Embolism. — Koester[1] states, as the result of his experience in the examination of cases of acute endocarditis, that micrococci are very generally found in the deposits on the valves. These deposits are sometimes very loosely attached, especially in the most recent cases, and may readily be displaced or overlooked. Their immediate effect is a destruction of the tissue of the valve, necrobrosis, the ulcerative, purulent, exudative, or granulating forms of inflammation being merely reactive processes, determining the different varieties of endocarditis.

In the histological examination of the valves from a case of acute endocarditis Koester found masses of micrococci within and around the blood-vessels of the valve, an appearance which suggested to him that their presence upon the surface in certain cases might be due to the effects of embolism. He would also consider the frequent seat of the micrococci upon the line of apposition of the valves as due to the nature of the arterial distribution here, which is such as to favor the occurrence of embolism. It therefore follows that the parasitic endocarditis is not to be considered so directly the sole cause of peripheral embolism, but may in its turn be caused by embolism from elsewhere.

Blennorrhagic Endocarditis. — The occurrence of acute endocarditis in gonorrhœa is reported by Marty,[2] the aortic valves becoming affected. There was neither rheumatism nor metastatic inflammation of the joints. He was able to find nine additional cases in the French literature where gonorrhœa was complicated with disease of the heart or pericardium, the complication taking place four or five weeks after the beginning of the disease. The pericardium was affected in three cases, the endocardium in seven; in the latter series the aortic valves were diseased in four, the mitral in three cases. In eight cases the cardiac affection followed gonorrhœal rheumatism, while in the other two there was no affection of the joints. The complication was generally preceded by a chill, and often attended by a suppression of the urethral discharge.

[1] Virchow's Archiv, 1878, lxxii. 257.

[2] Archives générales, 1876. Centralblatt für die medicinischen Wissenschaften, 1877, xvii. 304.

In the writer's case the discharge returned as the acute cardiac symptoms became mitigated.

He concludes that all the serous membranes may become inflamed during the course of a gonorrhœa, and that such inflammations are in causal relation with the primary disease of the urethra.

Tuberculosis of the Thoracic Duct. — Ponfick has of late examined the thoracic duct in all cases of tuberculosis, and has found it unaltered in every case of localized tuberculosis.

In the majority of instances, however, where the tuberculosis was general, numerous minute nodules resembling tubercles were found in its inner coat. This appearance may be regarded as evidence that abnormal lymph containing a specific irritant has passed through the duct.

These nodules afford the only tangible evidence of a fouling of the vascular canals with material whose nature we do not know, but whose presence may be regarded as sure from the striking results shown.

Exceptional Spotted Kidney. — A rare form of spotted kidney from a patient who presented the usual symptoms of Bright's disease was shown to the Vienna Medical Society by Professor Heschl.[1] The histological appearances, however, were quite different from those commonly observed in that affection. The yellow streaks and spots were not due to a fatty degeneration of the epithelium lining the tubules, but to the presence of fat in the intertubular tissue. The fat was collected about the tubes in the form of molecules and granular corpuscles, and the interstitial tissue contained an abnormally increased number of lymph corpuscles.

PROCEEDINGS OF THE BOSTON SOCIETY FOR MEDICAL OBSERVATION.

O. W. DOE, M. D., SECRETARY.

FEBRUARY 4, 1878. *Cerebral Syphilis.* — DR. POST read a paper upon this subject, which is reserved for publication.

DR. WEBBER remarked that in most of the cases of cerebral syphilis that he had seen the symptoms had been greatly relieved or the patients cured; but in those cases in which the spinal cord had been affected, whether alone or together with the brain, no benefit had been derived from treatment. He attributed this in part to the fact that in the cerebral form the meninges are probably first affected, and the symptoms are so urgent that medical aid is sought early; while in the spinal form the nervous structure is intimately affected, and the disease becomes firmly seated before the patient considers his symptoms of serious moment. In most of the cases he had seen Dr. Webber said there were no secondary symptoms noted by the patient, though perhaps they had existed and had been overlooked.

DR. WIGGLESWORTH remarked that in the *Medical Times and Gazette* of

[1] Wiener medicinische Presse, 1877, l. 1609.

November last Althaus has an article upon syphilis of the brain and spinal cord. Therein he states that neuro-syphilitic symptoms may appear any time within twenty years after the initial lesion, most frequently between the ages of twenty and forty. Cases in which the cord is affected are rare, and in his experience, when the cervical spine was affected, they had almost invariably proved fatal, usually from asphyxia, the thoracic and abdominal muscles and the diaphragm becoming paralyzed, or a permanent condition resembling ataxia had resulted from disorganization of the posterior columns of the cord. Paraplegia, incontinence of fæces and urine from paralysis of the sphincter muscles, and paralysis of the muscles of the upper extremities he states to be other symptoms which indicate spinal complication.

Dr. Wigglesworth said that anatomically the characteristic lesions of syphilis of the brain, formerly regarded as meningitis or encephalitis, are now considered to be rather repeated attacks of hyperæmia, syphilomata, or disease of the arteries. Hemiplegia or paraplegia in youthful persons is more common in the male sex, and nine times out of ten is of syphilitic origin. They affect preferably persons of neuropathic constitution, either hereditary or acquired, or are found in cases where the brain is suffering from alcoholic irritation, from over-indulgence in the sexual appetite, or from any undue strain put upon the nerve power. In the cases of repeated hyperæmia the symptoms closely resemble those of the general paralysis of the insane, and with the later and more marked symptoms on the part of the nervous system relapses are common elsewhere than in the brain; thus there is often a simultaneous outbreak of fresh syphilitic manifestations affecting the skin, mucous membrane, or periosteum. The arteries involved are usually the carotids, those forming the circle of Willis, the Sylvian, and the anterior cerebral.

Dr. Webber asked Dr. Wigglesworth if it were characteristic of patients having the syphilitic poison to bear large doses of iodide of potassium.

Dr. Wigglesworth replied that there seemed to be, to a certain extent, an antagonism between the iodide and the late disease products of the syphilitic virus, and the force of the drug being expended in producing absorption of such products the iodide apparently is not secreted to such an extent by the skin as in health; consequently the glands of the skin are subjected to less irritation. As to the general tolerance of the drug by the system, he had known of one and one half ounces of iodide of potassium being given in the day, this quantity being reached by increasing doses, without any symptoms of iodism appearing; and Dr. Taylor, of New York, had given twenty drachms of the drug in a day for syphilitic sciatica.

Dr. Arnold asked Dr. Wigglesworth how he would explain the intolerance of the drug in so many cases.

Dr. Wigglesworth said, First, by idiosyncrasy or special debility on the part of the patient; second, by the administration of the drug when (late) syphilis was not present; third, by impurity of the article used; and especially, fourth, by the increasing of the size of the dose more rapidly than the system of the patient could accommodate itself to such augmentation, when by proceeding more slowly the tolerance of even much larger doses could have been attained.

Dr. Hildreth said that he had often obviated the bad symptoms produced

by iodide of potash by employing at the same time mercurial inunction, and in cerebral syphilis he had obtained especially good results from this method of treatment. He had also noticed beneficial effects from alternating every two to three weeks with iodide of potash the proto-iodide of mercury.

Dr. Fitz remarked that in syphilitic affections of the spinal cord, in connection with intra-cranial syphilis, the prognosis must greatly depend upon the nature of the lesion and the region affected. In one case, which had been under his observation during a period of two years, the disease involved the lower portion of the dorsal region, producing marked paraplegia; yet the patient improved so much that she was able to walk a long distance without discomfort, though she suffered from occasional relapses. At one time the patient was seized with convulsions, partial loss of consciousness, and disturbance of speech, the former extending over a period of three days, the latter lasting some weeks, from all of which she gradually recovered under the combined use of mercurial inunctions and the internal administration of large doses of iodide of potash.

Dr. J. J. Putnam reported the following case of cerebral syphilis now under his care. The patient, a man in middle life, began to suffer from headache five months ago, and, after this had continued for a month, he was suddenly seized with a strange and intense attack of vertigo, followed by a second attack the same day. A few weeks later he began to suffer from indefinite symptoms, of which he can give but little account, and by which he was confined for several weeks to bed, being mildly delirious part of the time. On returning to consciousness he found himself with complete ptosis of one eye, and weakness of the opposite arm and leg. Since then the muscles of the leg have gradually become atrophied, and respond less readily than usual to the induced current, some of the muscles of the thigh wholly so, the atrophy being much more marked than that arising from extravasation, especially soon after the attack. There is now complete paralysis of the third pair of nerves on the right side. The arm has nearly recovered.

The conjunction of the paralysis of the third pair on the right side with partial hemiplegia of left side indicated the presence either of two lesions, which would not be remarkable, considering the nature of the disease, or, if but one were present, that its seat was near the right crus cerebri. No better explanation of the atrophy could be given than that the anterior cornu of the spinal cord had become secondarily affected.

Subjective and Objective Aural Sound. — Dr. Green reported the following case of a musical sound within the ear, which was both subjective and objective. A boy eight years old, of exceptionally fine intellect, and apparently in perfect health, with the exception of occasionally severe general headaches, complained of a "whizzing" in the ears, and the mother also, on placing her ear near, was able to hear it. Dr. Langmaid was called, and found the boy asleep, but while he was still asleep could hear the sound at a distance of several inches from the ear. The next day Dr. Green saw him, and the sound still continued, although less loud than on the previous evening. Examination showed absolutely no abnormal appearance in either ear, throat, or nose; the hearing for watch or voice was perfect, and the bone conduction was nor-

mal. The sound was musical, and was determined by Dr. Langmaid as g''; it was intermittent, synchronous with the pulsation of the carotids, much louder in one ear than in the other, but of the same pitch in both. Slight pressure over either carotid stopped the noise in the corresponding ear. The otoscope located the sound directly in each ear; it was not transmitted, and could be heard neither below nor behind the ear. Sounds of the heart and large vessels were perfectly normal; no abnormal distention of carotids or jugulars, and no murmur or thrill in them. No anæmia; no dizziness. Subsequent examination with Dr. Langmaid confirmed all of these results, and also that at times the sound was entirely absent, and at times so low that it could only be heard by means of a Camman's stethoscope; the pitch of the sound where it existed was always the same.

No explanation of the phenomenon could be given, although it seemed probable that the sound was connected with the carotid artery in its passage through the petrous bone in intimate relation with the tympanum. The occasional cessation of the sound, its existence in both ears, and the age of the patient were opposed to the theory of its being dependent on an aneurism, as was suggested by one of the members present.

Modification of Barwell's Elastic Muscle Apparatus. — Dr. J. J. Putnam exhibited to the society a young man suffering with wrist-drop from lead paralysis, and showed an apparatus which he was wearing to give support and passive motion to the affected muscles. It was practically a modification of Barwell's elastic muscle apparatus; consisting of a double strap of strong elastic webbing fastened below to the back of a strong leather glove by a buckle, and at the upper extremity of the fore-arm to the upper end of a strip of tin about two inches wide and hollowed somewhat to give it stiffness. This strip of tin was held firmly at its lower end by a strap which was sewed to a broad piece of sticking-plaster running the whole length of the fore-arm, which in its turn was bound down by long pieces of plaster surrounding the arm in a spiral. Dr. Putnam said that he had tried several other methods of arriving at the same end, but had found none to work so well as this.

Mortality-Rate among Physicians. — Dr. F. W. Draper showed to the society a chart which he had drawn up from recent investigations made by him, representing the mortality-rate among physicians. His attention had been called to this subject by an obituary notice of Dr. Crosby by the late Dr. Peaslee, in which the writer mentioned the age of forty-two years as a specially fatal one among physicians. Dr. Draper arrived at the following results: of six hundred and sixty-seven deaths of members of the Massachusetts Medical Society during the last twenty-five years, the earliest occurred at the age of twenty-one, the latest at ninety-five, the average age at death being 58.84 years. The greatest number died at the age of seventy-two, the next largest number at sixty-nine. Among twelve hundred and sixty deaths of physicians recorded in the registration reports for Massachusetts for the past thirty-four years the average age at death was 53.27 years.

Dr. Fisher said that he had recently made similar investigations, taking the mortality-rate of all the deaths in the Massachusetts Medical Society since its foundation, eight hundred and fifty in number, and had found the average age at death to be 58.55.

FEBRUARY 18, 1878. *Faulty Innervation as a Factor in Skin Disease.* — DR. WIGGLESWORTH read a paper upon this subject, which has been published in the *Hospital Gazette.*

DR. BOWDITCH referred to the case of a lady fifty-five years of age, who had suffered for several months from enlargement of the liver, attended at one time with jaundice. The hepatic symptoms were now much relieved, but she was suffering from furunculosis of the scalp, and he asked the reader if he had met with affections of the scalp dependent upon disease of the abdominal viscera.

DR. WIGGLESWORTH replied that he had once seen impetiginous eczema of the scalp, accompanying gastritis and derangement of the portal system.

DR. FISHER remarked that among the insane were seen many affections dependent on faulty innervation, such as erysipelas, boils, carbuncles, bedsores, and changes in the growth and color of the hair. In general paralysis the ribs often show a liability to fracture easily, on account of absorption of deficient supply of earthy material.

DR. ELLIS asked Dr. J. J. Putnam what facts seemed to prove the existence of trophic nerves.

DR. PUTNAM replied that the occurrence of grave lesions of muscles dependent upon disease of the spinal cord, coming on very rapidly, and apparently not as a result of secondary changes in the motor nerves, seems to show that certain parts of the spinal cord stand in intimate trophic relationship with the muscles. It is still uncertain whether there are special nerve cells and nerve fibres having these functions, or whether it is that the motor cells and fibres serve a double purpose.

New Delusion. — DR. FISHER referred to a new delusion he had recently observed, being the first of the kind reported, as far as he knew. It was a belief in telephonic communication growing out of hallucinations of hearing. The case was one of the delusional insanity of chronic alcoholism. There was also a belief in a plot to deprive the patient of certain imaginary real estate in England. This new form of the general delusion of mysterious or unseen agency is likely to become common, as it is such a natural result of the symptom known as false hearing.

New Method of applying Plaster-of-Paris Jacket. — DR. BRADFORD showed a method of applying a plaster-of-Paris jacket in caries of the spine in children, by which suspension can be avoided.

A piece of cloth is folded so that it is longer than the body, and narrower than the thorax of the child; this is held stretched by two assistants, if the patient is quite small, or each end of the cloth is rolled on a bar of wood; one bar is screwed upon a table, and the other connected by rope and pulleys with staples placed in the wall. The patient is placed face downward lengthwise along the cloth, which by means of pulleys can be held taut, even when a child of considerable weight is placed upon it. The feet are fastened by bandages to the bar, and the head is held by an assistant who sits upon the table and pulls, extending the spine. If necessary, the table can be prevented from slipping by cleats screwed into the floor. The plaster-of-Paris bandages are then wound around the child and the cloth on which it lies. When the plaster of Paris is firm the cloth is cut above and below the jacket, and the patient set free.

This method is not as distressing as suspension by means of Sayre's tripod, and the child need not be moved until the plaster of Paris is perfectly hard.

Dr. C. P. Putnam said that it occurred to him as a possible objection to this plan that there might be some danger of bandaging a child into a position in which he could not comfortably walk. It was of great importance to get the proper relative positions of the spinal column and the pelvis, and this is obtained with the suspending apparatus, especially if the child touches the ground with the toes. In cases of great deformity there is a correspondingly great curve in the lumbar region, which might be changed by lying down. He asked Dr. Bradford if he had ever applied it in cases of severe deformity.

Dr. Bradford replied that he had not.

March 4, 1878. *Post-Diphtheritic Paralysis.* — Dr. J. J. Putnam read a paper upon this subject, which is reserved for publication.

Dr. Webber said he agreed with Dr. Putnam that paralysis after diphtheria generally depends upon lesions of the spinal cord, but he thought that sometimes the nerves are affected without central lesion, as when there is unilateral paralysis of the soft palate, and in some other cases an occurrence of neuritis, even of limited extent, would better explain the symptoms than an affection of the cord. Dr. Webber said that Oertel and others have found micrococci in the blood, etc., effused in and about the spinal cord, and he asked Dr. Putnam if he had discovered them in any of the cases he had examined.

Dr. Putnam said he had not.

Dr. Webber referred to a case which he saw many years ago, in which excessive hyperæsthesia of the left leg followed a slight attack of diphtheria, with subsequent paralysis of the soft palate. The hyperæsthesia lasted several months, increasing very gradually in intensity, and subsiding in the same manner. The patient died of phthisis, and at the autopsy the sacral plexus on the left side was much larger than on the right, the sheath being thickened. The spinal cord was not examined.

Dr. Knight referred to the fact of neuralgia following diphtheria, and said he thought some of the severest forms of neuralgia might be attributed directly to this disease.

Fat Embolism. — Dr. Fitz showed a microscopic specimen of fat embolism of the lungs, coming on independently of fracture of the bones. The patient entered the Massachusetts General Hospital with dislocation of the hip in consequence of being run over by a hand-car. He had been chloroformed previous to his entrance, and attempts were made to reduce the dislocation. His death took place eleven hours after the injury had been received. While in the hospital the pulse was very feeble, and a chill took place, accompanied by cyanosis, from which temporary relief was obtained with the aid of brandy. At the autopsy, the subcutaneous and intermuscular tissues of the thigh were extensively infiltrated with blood, and the pulmonary blood-vessels were frequently found to be filled with fat drops. Dr. Fitz remarked that he knew of no reported case where fat had been taken up simply from bruised fat tissue, which was evidently the source of the embolism in the present specimen.

The lymph vessels over the iliac artery coming from the injured thigh contained blood, and the nearest lymphatic glands were of a darkened color from the presence of blood.

MARCH 18, 1878. *Cases of Rapid Lithotrity.* — DR. CURTIS read a paper upon this subject, which was published in the JOURNAL of May 2, 1878.

DR. AMORY asked the reader if prolonged prostatic disease, in an aged person, was a contra-indication to this operation.

DR. CURTIS said no, and mentioned the fact that Sir Henry Thompson performs lithotrity when there is obstructive disease of the prostate, the fragments being evacuated at each sitting by means of Clover's apparatus.

DR. BOLLES asked the reader if he knew of any cases where several sittings proved necessary.

DR. CURTIS replied that he knew of no case excepting that of Dr. Porter, of which an abstract was given in Dr. Bigelow's paper. In that case three sittings were required, separated by intervals of four and five days. There were one thousand eight hundred and two grains in all removed, and three days after the last sitting the patient left the hospital, well. In this case there were two stones, and it well showed what an amount of disturbance the bladder is capable of tolerating.

With reference to gradual dilatation of a stricture, as preliminary to this operation, DR. NORTON FOLSOM asked if it would not be better to rupture the stricture and perform lithotrity at the same sitting, as he thought the shock from the two procedures would not be much greater than from one alone.

DR. CURTIS replied that rupture was hardly efficacious except for narrow strictures, and that such would probably render the treatment by rapid lithotrity impossible. Wide strictures, such as occur in the anterior portion of the urethra, are not amenable to treatment by rupture. Internal urethrotomy or gradual dilatation is preferable, and by this means in cases of slight contraction a sufficient calibre might be obtained to allow the use of the large evacuating catheter.

Rare Fracture of Clavicle and Ribs. — DR. DRAPER showed a rare form of fracture of the clavicle and ribs, and gave the following history of the case. The patient, a woman thirty-seven years of age, in a quarrel with her husband, fell or was pushed from the top of a steep flight of stairs to the bottom. She died thirty-six hours after, and at the autopsy the left shoulder was found to have an extensive bruise on its superior aspect; the left clavicle was obliquely fractured at the acromial extremity outside of the trapezoid ligament; the epiphysis at the sternal extremity was crushed off by impaction; the first, second, and third ribs on the left side were fractured through their neck, close to the tuberosity, the fracture being nearly transverse.

Dr. Draper remarked that any fracture of these ribs was very rare, and that a fracture in the situation described was especially exceptional. Another interesting point was that the third rib, besides being broken through its neck, had sustained a partial fracture in the middle third; moreover, attached to its tuberosity was the tip of the adjacent transverse process of the fourth dorsal vertebra. Death took place, not from the injuries above stated, but from

meningeal hæmorrhage with compression; a clot measuring two and a half inches overspread and compressed the entire left cerebral hemisphere. The skull was not fractured, but two severe contusions of the scalp gave evidence of external violence. The hæmorrhage was not directly beneath the scalp wounds, the opening in the vessel being upon the upper surface of the left frontal lobe, while the principal contusion was in the left mastoid region.

Tubercular Meningitis. — Dr. J. B. Ayer reported the following case of tubercular meningitis. The patient was a bright, precocious girl four and a half years of age, previously healthy, with no hereditary history of a tuberculous or scrofulous character.

Dr. Ayer first saw the patient February 3, 1878. Her friends stated that she had "caught cold" in the country, and was much debilitated. On examination, a small diphtheritic patch was seen on the right posterior pillar, together with follicular tonsillitis.

February 7th. She was placed on tonic treatment, and dismissed. She improved, and began to go out-of-doors, but at the end of a week became more languid, took less interest in amusements, grew taciturn, and had little desire for food.

February 18th. Vomiting commenced. Stomach remained very irritable for thirty-six hours, retaining milk and lime-water only (with brandy) in very small amounts. Injections at this time brought away hard, clay-colored fæces. Until February 23d she complained of severe pain in the region of the stomach, which was controlled by hot applications and small doses of deodorized tincture of opium, with spearmint. The temperature, taken twice during this period, indicated 99°. The pulse was very slightly raised at first, but it soon became slower, and was once found as low as 66. The patient did not complain of headache, did not avoid the light, and, in short, during this time showed no certain symptom of cerebral irritation.

February 23d. She became more languid, and took food less cheerfully. The pupils were widely dilated, and in a few hours ptosis of the right lid was noticed, and the patient fell into a semi-conscious condition. The pulse fluctuated between 56 and 66, and was often intermittent. Temperature 99.4° to 100.2°. Iodide of potassium was given in two-grain doses every three hours. Ice was applied to the head and mustard to the neck; milk and beef tea were given every two hours. Dr. Calvin Ellis saw the patient at this time in consultation, and on several occasions subsequently.

February 24th. The patient became comatose. Examination with the ophthalmoscope showed optic neuritis of right eye. Pulse 66 to 76. Temperature 99.4° to 100.8°. Respiration 24 to 25.

ebruary 25th, 26th, 27th. Partial hemiplegia of right side appeared. Nourishment was given per rectum, — twelve ounces of milk and the same amount of beef tea every twenty-four hours. Pulse 76 to 103. Temperature 98.9° to 100.9o. Respiration 19 to 27.

February 28th, March 1st, 2d. The nose at its junction with the forehead became red and swollen. Epistaxis followed, and then an offensive purulent discharge from the mouth and nostrils. Pulse 125 to 152. Temperature 101.7° to 102.3°. Respiration 44 to 52.

March 3d, 4th, 5th. Face drawn to the left. Slight purulent discharge. Injections retained about half the time. Fifty-three hours before death the nurse found the temperature 110°; the fever was so intense at the time that it seemed to her as if the "flesh were burning up." Thirty minutes later the skin had grown cooler, and the temperature was 104°.

March 6th. The patient had become much emaciated. The breathing at times was distressed, again imperceptible. Slight twitchings of the fingers were noticed, but no convulsions. She died quietly at eight and a half P. M., sixteen days after the first attack of vomiting and eleven days after the appearance of serious brain symptoms. She had been unconscious ten days and supported by nutritive enemata nine days.

Dr. Ayer called especial attention to the obscurity of the early symptoms.

Acute Yellow Atrophy of the Liver. — Dr. Bolles reported the case, which occurred in the practice of Dr. Hall Curtis at the City Hospital and was published in a recent number of the Journal.[1]

PROCEEDINGS OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.[2]

A. L. Mason, M. D., Secretary.

Revision of the Pharmacopœia. — Prof. G. F. H. Markoe addressed the society on the subject of the revision of the Pharmacopœia, presenting at length the deficiencies of the present system and the changes which were desirable.[3]

Dr. Bowditch asked why any objection had been made to attaching the amount of the dose to the directions for each preparation.

Professor Markoe said that it was thought in New York that some legal objection might be raised in case that the dose were exceeded or diminished by physicians.

Dr. Bowditch was of the opinion that the statement of the dose should by all means be added.

Dr. Harlow thought that the properties of the drugs should be given as well as the doses, as in the Dispensatory.

Professor Markoe said that that would make the book too large for laboratory purposes.

Dr. H. W. Williams regarded the specifications of the dose as open to serious objections. It was likely to lead apothecaries to prescribe largely, and, moreover, the dose had to be decided by the physician in each given case. Possibly there might be no objection to mentioning an approximate dose within certain limits.

Professor Markoe thought that it would be well to indicate the doses of certain drugs, poisons at least.

Dr. Ordway moved that a committee of three be appointed by the chair to take into consideration the whole subject of the revision of the Pharmaco-

[1] Journal, May 9, 1878.

[2] Concluded from page 785.

[3] See Proceedings of Norfolk District Medical Society, Journal, January 31, 1878.

pœia, and to report to the society. The matter was subsequently referred to the councilors.

Jennings's Closet. — Dr. Bowditch explained this water-closet, which had been criticised by Dr. N. Folsom at the November meeting.

Figures 1 and 2 show the heavy, perforated plunger used in the Jennings water-closet. At its bottom is a thick India-rubber ring (a a), beveled at its circumference, so as to fit exactly into the mouth of the receiving tube, just above the trap leading to the drain. This beveled edge is five eighths of an inch broad, and every part of it, *if the rubber be properly fastened*, fits closely into the receiving tube, and thus forms an extremely tight joint. This is represented in Figure 1. If, however, the ring be fastened *upside down* (in which position an ignoramus would very naturally place it, because, as will be seen, it conforms more perfectly to the outlines of the upper parts of the plunger) the whole of this five eighths of an inch is virtually lost. The thin, almost membranous *outer rim* alone is left to close the opening. This it almost invariably fails to do. Moreover, it has always to be jammed down, and tends to spring up again instead of falling immediately and tightly into its place, as when properly fastened. Figure 2 represents it as thus placed. The consequence of this state of things is exactly that described by Dr. Folsom. Leakage for hours after the usage of the water-closet is the result. Probably this defect was caused by the ignorance of a plumber rather than by any inherent difficulty in the apparatus itself. Dr. Bowditch had seriously thought of having one taken away from his own house, but a plumber from Messrs. Loring's shop, Harrison Avenue, suggested that probably the plunger was wrongly placed. On examination he discovered that it was so, and he immediately changed it. Since that time Dr. Bowditch had found no difficulty, and regards it as the best kind of water-closet now in use.[1] It has two valuable qualities: (1.) It discharges immediately and with great force a large volume of water, and all deposits are instantly removed. (2.) It keeps itself much cleaner than any other closet, and the interior does not so early become stained.

Fig. 1.

Fig. 2.

Swinging Splint. — Dr. T. B. Curtis showed a swinging apparatus for treating fractures, devised by him several years ago. A full description is published elsewhere.[2]

Diphtheria; House Drainage. — Dr. Minot mentioned three cases of zymotic diseases in parts of the city regarded as the most healthy, in all of which radical defects in the house drains were found.

Case I. Typhoid fever. The soil pipe did not ventilate at the top of the house.

Case II. Diphtheria. The child died in one week. The soil pipes were defective, so that the sewer gas was pumped over the house.

[1] While correcting these proofs, the valve has failed to operate perfectly, that is, it has failed once in five months since the above report was made, instead of several times daily as before.

[2] See page 691 of this number.

Case III. Diphtheria, fatal in about a week. The Board of Health discovered that the soil pipe contaminated the air of the house through the cemented floor of the basement, just above which the child played. In the same house there was an outbreak of diphtheria, with three fatal cases, two years ago.

Dr. Bowditch inquired whether it would not be well to remove patients with these zymotic diseases, as in cases of cholera infantum, to a short distance, at least, from the places where the illness was contracted.

In answer to a question from Dr. Read as to whether contagion could have taken place in the cases mentioned, Dr. Minot said no; that the children were attacked suddenly, having gone to bed the night before perfectly well. The type of the disease was malignant, the leathery deposit in the throat extending forward to the molar teeth. There was no difficulty of respiration. They were overwhelmed by the poison.

Dr. Read said that in the last five years he had seen eight cases of diphtheria. Those of the croupous form all died; the others got well. He never had regarded the disease as contagious until within a year, and no spreading of the affection had been noticed in connection with his cases. Still it was the sentiment of the profession that diphtheria was contagious. If it arose spontaneously from sewage in sporadic cases, why was it not extended further, beyond these isolated cases? Dr. Read thought that there was much confusion and doubt with regard to the origin of the disease, which should be investigated.

Dr. Chenery had lately seen a case, in a house where there had been two deaths from diphtheria, which he thought might depend on sewer gas, as the soil pipe was quite defective. Last year he saw five cases in a house with a cess-pool in front; but he was confident that in many instances within his experience the disease had originated where the sanitary conditions were good.

Dr. Kinnear inquired of Dr. Bowditch whether the Board of Health had yet made any conclusions with regard to the contagiousness of diphtheria.

Dr. Bowditch replied that he could not speak for the State Board of Health; but for himself he had formed decided opinions, especially since studying an epidemic of diphtheria during the past summer at a town adjacent to Vergennes, Vermont. Dr. Bowditch felt that the course of that epidemic went strongly to support the following views: —

(1.) That diphtheria is *contagious;* numerous instances seem to be accounted for only on that idea.

(2.) That it is *infectious* seems strongly indicated by the fate of one family, all the members of which, except the father, were kept away from the sick persons and houses in which they were lying. The family took every precaution, and seemed for a time successful, when their neighbors were fatally attacked. The father, however, as a neighborly act, laid out one dead body and attended some funerals, returning home every night. After the disease had apparently subsided his three children and wife were suddenly seized. The wife was paralyzed about the palate, and the children died.

(3.) Filth appeared to have its effect in making the disease more virulent and destructive. An example, apparently, of this fact was the following, which took place in what, at first glance, seemed a nicely situated and admirably built house. It was the only brick house of those parts; it stood in a broad,

open field; it had a granite foundation raising it from the ground, while the others were of wood, and resting, as most of our farm-houses do, almost, if not quite, upon the level of the greensward around them. It had, I learned, a firmly cemented cellar. Moreover, a drain led from the house, in order to avoid the unsightly appearance of the slops when thrown upon the ground around the house, which custom was universal here save at this house. The drain was untrapped, and ran by a very slight descent into a bog about three hundred feet distant. Its mouth for the reception of slops was close to and directly in front of the kitchen door. Its other opening terminated in the bog of mud and water, in which the cattle stood to cool themselves in the summer, and dropped urine and fæcal matter, while their feet stirred up the mud and these new materials. The wind could enter this opening, carrying the malaria of the bog, the fœtor of urine and fæcal matter. These, combined with that from the slops, would be easily driven directly into the kitchen door. In this family the mother and three children were killed very rapidly.

(4.) Cleanliness seemed to ameliorate the disease, as shown in another house. This was situated on the summit of a dry hill overlooking the whole horizon. The slops, it is true, were thrown from a side porch upon the ground, but they ran rapidly down the slope. Everything about the house was extremely neat. No contaminated air could easily find access to the homestead. One child had undoubted diphtheria, and the rest had mild sore throats. All recovered. Dr. Bowditch could not help thinking that if the children and mother in the former case had been in a similar situation it is possible that they too would have escaped death.

In conclusion, Dr. Bowditch said that in his opinion we ought to consider the disease as contagious and infectious, and govern ourselves accordingly. Physicians should be careful to visit no such cases before seeing other delicate patients, puerperal cases, for example. We should act as we do when called to see a case of erysipelas and a puerperal case the same day, under which latter circumstances we might bring death to the puerperal women if we were not very cautious about our hands and clothing in going from one to the other.

The meeting adjourned at ten o'clock.

HOLDEN'S LANDMARKS.[1]

We have received copies of this excellent work from two publishers, but we do not propose to institute any comparison between them. If the book sells as well as it should they will both have made a good investment.

The knowledge of anatomy which this book conveys is precisely of the kind for which both surgical and medical practice makes a constant demand. We are glad to believe that teachers are awakening to the fact that this knowledge not only does not come by nature, but that the average student does not deduce it from descriptive anatomy, nor even from dissection, but requires to have it taught methodically.

[1] *Landmarks, Medical and Surgical.* By Luther Holden, F. R. C. S. Second edition. First American edition. Philadelphia: Henry C. Lea. 1878. Also, Philadelphia: Lindsay and Blakiston. 1878.

The plan of this book is good, and the style clear and simple; our criticism, therefore, bears chiefly, if not entirely, on omissions, and should be made with diffidence, for it is no easy matter to determine just what the limits of a work of this kind should be. It seems to us that the author has hardly given due attention to the nerves. It would have been well to have mentioned the nervous supply of each part, and also to have enumerated the "painful points." The base of the heart and the arch of the aorta are, we think, placed a little too low. In the article on the shoulder we think the author should have insisted on the fact that the acromion forms the projecting point of the shoulder girdle, and that the clavicle is entirely internal to it. We are glad to see that the author is very doubtful as to the possibility of feeling the normal kidney through the abdominal walls. Tenderness of the organ on pressure can easily be ascertained, but he does not think we can feel it unless it is enlarged. The position of the two openings of the stomach is correctly stated, but we should like to have attention called to the fact that the lesser curvature is nearly vertical. The book concludes with two short chapters on the exploration of the rectum with the whole hand and on vaginal examination, by Mr. Walsham and Dr. Godson respectively. We must think it a serious oversight that the danger of the former method is not duly set forth, and that there is no condemnation of Simon's practice of examining freely himself and then allowing one or two other persons to follow him. In our opinion this method of examination should never be used unless the surgeon is convinced that the information likely to be obtained is of sufficient importance to justify endangering the life of the patient. Such examinations, however, on the subject, if not agreeable, would at least be very instructive.

T. D.

THE NATIONAL MEDICAL LIBRARY.

We have at various times given our cordial testimony to the value of the work done by Dr. Billings in the National Medical Library at Washington, and, with every fresh intelligence from that direction, we recognize the importance of the position the library holds in our professional life.

Every medical man is at times a writer, or he is or ought to be a reader and a student; every such student and every such writer feels the necessity of knowing and reviewing what other men have thought and written on the subject he has in hand. For just such thinking and working men Dr. Billings has accomplished, by well-directed and persistent labor, a boon which comparatively few of our profession are aware of.

The specimen fasciculus which was sent some months ago to various members of the profession, for comment and suggestion, shows us that the National Medical Library now contains more than forty thousand volumes, besides forty thousand pamphlets, all well arranged and well catalogued. The (so called) author catalogue of this collection is well known to every bibliographer, and is invaluable in the way of medical literature.

The fasciculus, however, goes farther, and gives an inkling of a work of still more importance to the profession, and, if the views of the department can be

carried out, we may look for the opening in tangible shape of the whole field of medical literature, so far as the library represents it. To accomplish this object Dr. Billings has prepared a subject catalogue of the library, not only of the books proper and the pamphlets, but of the contents of medical periodicals, transactions of societies, and other serials. The value of ephemeral literature is seriously impaired by the difficulty of classifying and finding it, but the inception of new ideas, the working out of new problems in medicine, and the elaboration of special topics owe their life to monographs, to pamphlets, and to periodical articles. Such material is always fresh and always ahead of the text-books, but is apt to end its existence in the waste basket or to be lost in packages of journals stored on the upper shelf. We hope that the plan of Dr. Billings may be carried out, and that every physician in the land may have access to his subject catalogue, which will rescue this valuable material from oblivion.

A bill is now before Congress to authorize the publication of the first volume of the subject catalogue, the material for the entire work being fully prepared for the printers. It rests with our national legislators to decide if this valuable material shall be put into our hands at an early day.

MEDICAL NOTES.

— English medical journals are complaining of the effects upon children of a so-called violet toilette powder. It caused an epidemic, the disease resembling erysipelas. The powder was analysed, and was found to contain twenty-five per cent. of white arsenic.

— Professor Sharples, in a recent article in the *Cambridge Tribune*, gives some interesting facts in regard to the adulteration of milk. He shows how difficult it is to tell by the ordinary methods of analysis. For instance, pure milk having a specific gravity of 1030, skimmed milk will have a specific gravity of 1035 to 1037, and if twenty per cent. of water is added to the latter the lactometer will give no indication of adulteration, but the milk becomes blue, and it tastes watery. "The blue color may be corrected by a little burnt sugar, which is regularly manufactured and sold for the purpose, and the taste is greatly aided by a little common salt. Now the milk tastes all right, yet it is watered and skimmed and otherwise adulterated. If we take a second case of a farmer who wishes to increase his profits, yet who does not understand the business fully, but who takes the milk just as received from the cow and adds twenty per cent. of water to it, he reduces in this way the specific gravity to 1024. The inspector at once seizes the milk, and the milkman has to suffer for it." Milk must therefore be carefully tested for cream. The writer compares woman's milk with that of cows, and shows that the only essential difference between the two is in the amount of fat, and that the only thing, therefore, that should be done with cow's milk to render it fit for a young child is to remove part of the fat. The addition of water or any foreign matter, such as cane sugar or arrow root, should be carefully avoided. In regard to condensed milk he quotes another writer, who says: "Whilst it was admitted that

infants take it readily on account of its sweetness (the moist extract contains about twenty-eight per cent. of cane sugar), grow plump, and appear to thrive remarkably well upon it, it is alleged that the appearance, which depends simply upon an accumulation of fat, is delusive, and that they really possess so little power that they become prostrated by diarrhœa and other affections, and rapidly sink in a manner that is not observed in other modes of feeding."

— The board of trustees of Columbia College has conferred upon Dr. Fordyce Barker the degree of LL. D.

— Dr. Horace T. Hanks, of New York, has been appointed lecturer on obstetrics in the medical department of Dartmouth College.

— Dr. Orlaw, of St. Petersburg, reports ten successful cases of injection of the tincture of iodine into the knee-joint for chronic inflammation. The strength used was one drachm of tincture to three of water. Effusions in the cavity of the joint were first evacuated. The inflammation was rapidly ameliorated, and there was no relapse.

— The secretary of the treasury has directed all medical officers of the Marine Hospital Service to make use of the metric system of weights and measures.

— The *London Telegraph* mentions a case of communication of scarlet fever by mail. One lady received a letter from another who was nursing a child ill of scarlatina. The lady destroyed the letter, but gave the envelope to her own child, which in due time became sick of the same disease. It is supposed that the letter may have infected other accompanying mail matter.

— The School Board of London, at the request of the National Life-Boat Institution, has decided to instruct all their scholars, one hundred and eleven thousand in number, in directions for the restoration of the apparently drowned.

— From both England and Germany come reports of cases of poisoning by American canned meats.

— The *Sanitary Record* warns those who purpose visiting Paris not to drink the water of that city, saying that of all waters it is the least reliable and most productive of typhoid, a common scourge of the French capital.

— According to the *Clinic*, opium eating has increased greatly in Maine. More morphia is sold in that State than in any other in the Union in proportion to the population. The enforcement of the liquor law is said to be the cause.

THE HOSPITALS OF CHICAGO.

Mr. Editor, — It ought to be a pride of every large city that it has hospitals sufficient for the housing and care of all its poor and unfortunate sick. It ought to be the boast of every very large city that it has a hospital where paying patients of the middle classes may go and be attended and cared for with something of a home-like air and seeming. Unfortunately, few cities have such a hospital. Doubtless, one chief reason for this is the wide-spread popular prejudice against hospitals. People object to going for treatment to hospitals as long as they are pecuniarily able to keep out of them. A long and patient influence in the right direction will be required to educate the

masses in this country to believe that hospitals are not horrible places, next to prisons. Chicago has no reason for complaint at the small number or the capacity of her hospitals, or to ask for more, just at present. Hospitals originate in a variety of motives; sometimes it is from a legal necessity to care for the poor of the city or county that a hospital is started; sometimes it is in fulfillment of the vocation of a religious order or of the philanthropic purposes of a church; sometimes it is from the laudable ambition of medical men and women to have a wider field for the study of special or general diseases while they relieve the sufferings of the sick; rarely — sorrowfully be it said — is it from a conviction in the public, otherwise uninterested, that a hospital is really necessary to care for the unsheltered sick.

In a rapidly growing large city hospitals are in some things likely to obey the laws that govern other kinds of institutions, as hotels, factories, and stores. So many of them are likely to spring into existence at some epoch of the town's history that they must wait for the development and growth of the city to become needful if not to be useful. Hospitals have the advantage of hotels and factories, however, in the fact that, depending always largely on the contributions of the public and on persistent solicitations for support, they rarely fail to keep above water, however deeply they get into debt. Who ever heard of a hospital going into bankruptcy and closing its doors! Who ever heard of a hospital debt or deficit that could not be raised by the faithful "Ladies' Board of Managers," or other friends of the institution! But with all their short-comings and defects of method, the hospitals of a ci y are its noblest institutions, and the constant solicitations for money to operate them are among the most humanizing and wholesome influences ever exercised upon such a community.

The largest hospital in Chicago is the "Cook County," which is the great pauper hospital, is supported by the county, and controlled and managed by the board of county commissioners elected by the people. The present buildings were occupied about two years ago only, and hence are comparatively new and fresh. The plan is that of brick pavilions three stories high, each story being unconnected with the rest except by a covered one-story corridor, which joins the pavilions, the amphitheatre, cook-house, laundry, and engine-house. The buildings are situated in the centre of a twelve-acre lot, near the geographical centre of the city, and the plan contemplates the erection of other pavilions beside the two now in use, as they may be needed. This is the only pavilion hospital in Chicago. The present capacity of the hospital is three hundred and fifty patients. The average number in the wards during the past year has been two hundred.

The surgical amphitheatre is altogether the most magnificent part of the pile. Its construction was apparently dictated by the anticipation that in the years to come all the medical students in America were to be educated here. Its operating arena is sufficiently spacious to serve as the dancing place for a grand ball, and its seating capacity for students is said to be six hundred; it looks as though a thousand could find seats without touching elbows anywhere. There are a large museum room, a number of rooms for the preparation of patients, and rooms for the temporary custody of the insane, etc., in this structure.

The heating of the wards is by air passing over steam coils in the basement of the building, and the ventilation is accomplished by the suction through flues reaching to spaces on the floor near each pair of beds, the draught being produced by an up-current of heated air in a large shaft or tower at the centre of each pavilion.

Clinics are held in the amphitheatre three days of each week, and are free to students of any school and of both sexes on payment of five dollars annually.

The dead-house and necropsy theatre is a separate building. There were held in this amphitheatre many public post-mortem examinations during the past year; indeed, there is hardly any restriction upon the study of morbid anatomy at this institution.

The active medical staff of this hospital consists of six physicians and six surgeons, who alternate in their terms of service, there being usually half of the staff on duty at a time.

Appointments to vacancies in the staff are always made by the board of commissioners, usually on the nomination of the staff. The staff is in part representative of the faculties of the colleges, and in part of the profession at large. The house corps consists of two externes and four internes, all of whom are appointed by competitive examination. Each one serves a year and a half, six months as externe and a year as interne.

The number of patients at this hospital is not to be taken as an index of the hospital accommodations the county furnishes its poor, for there is a hospital for incurables and for lying-in cases at the poor-house in Jefferson, several miles out of town, to which cases are sent almost daily from the County Hospital. The hospital at Jefferson has an average of perhaps twelve cases of confinement each month, and constantly nearly one hundred cases of incurable disease.

The next in size and importance is the Mercy Hospital, under the control of the Sisters of Mercy. It is located near the lake shore, two and a half miles south of the centre of the city. It has a capacity of nearly three hundred patients, although it rarely has half that number at any one time. The building of this hospital has been constructed piecemeal, additions having been made as its needs increased. It contains a surgical amphitheatre capable of seating two hundred or more students.

The hospital is under the professional control of the faculty of the Chicago Medical College, which occupies a part of the hospital grounds with its building. The clinical material is put to the fullest and best use possible for the students of the Chicago College, who alone are admitted to its wards. There is, however, one unfortunate drawback to the most complete clinical advantages at the hospital, namely, the difficulty of holding any considerable number of necropsies. As nearly all the inmates are to some degree pay-patients, and have friends who immediately take charge of the bodies after death, it would be impossible to carry out any thorough study in this direction, even were the authorities of the hospital not opposed to such a course, from religious bias or otherwise, which they are.

The St. Luke's Hospital, situated near the lake shore in the south division of the city, is nearer the business centre of the town than any other hospital.

Though one of the smaller hospitals, having accommodations for only thirty patients, it has always been remarkably useful and efficient; it is, moreover, always full of patients. It is a general free hospital, and, while under the control of and supported very largely by the Protestant Episcopal church, its benefits are not restricted to members of any religious belief.

The present quarters of this hospital are of wood, the building having been formerly occupied as a residence. The house is old, not adapted to the work of a hospital, and of course is not a fit place for the permanent home of this excellent institution. The association owns a valuable lot, three and a half miles south of the business centre of the city, which is the site of the "St. Luke's" of the future.

The medical staff consists of a surgeon, a physician, an accoucheur and gynæcologist, an oculist, a dentist, and a pathologist. Changes in the staff occur very rarely. Clinics are held here from time to time, but with no advertised regularity. They are, I believe, open to any students of medicine, without fee.

A hospital that does a goodly work with little parade is that of the Alexian Brothers. It is situated in the north division of the city, two miles from the business centre and half a mile from the lake shore. The hospital is open only to patients of the male sex. It is under the control of the Alexian Brothers, twenty of whom live in the hospital building and do all the work of the establishment. The control of the hospital rests with the Brother Superior, who is the head of the Alexian order in the United States. Patients who are able to pay are charged from seven dollars to fifteen dollars per week, according to accommodations. The hospital building is a large and fine one. It is divided into rooms (many of them small) of which there are about sixty, and the capacity of the institution is two hundred patients. About seventy is the average number of patients during the last year.

The medical staff consists of an attending surgeon, an assistant surgeon, two attending physicians, and a consulting physician. Changes in the staff are rare. No attempt at clinical teaching has, so far as I know, ever been made at this hospital.

Three quarters of a mile north of the Alexian is the St. Joseph's Hospital, under the control and management of the Sisters of Charity. It has a fine brick building, built about ten years ago, which contains nine wards, having space for one hundred beds. This hospital receives all classes of patients, except those with contagious diseases. The average number of patients in the house during 1877 was fifty.

The medical staff consists of a surgeon, a physician for ordinary cases and one for cases of nervous and mental diseases, a house physician, a consulting physician, and a consulting surgeon.

Free clinics are announced for three days in the week, but the remoteness of the hospital from any medical school makes its clinical facilities almost useless. Rarely is any number of students present.

The Chicago Hospital for Women and Children is a small hospital devoted to the classes of patients indicated by its name. It was organized in 1865, and was situated in the north division, where it was burned in the great fire of 1871. Now it occupies a brick building of its own within half a mile of the

geographical centre of the city in the west division. The building is a remodeled residence. The capacity is thirty-five patients, and the hospital is generally full. The institution is managed by a body of Protestant ladies, who solicit of the public such funds for its support as are not raised by the fees from pay-patients.

In the admission of patients no discrimination is made regarding any sick women or children, unless they are afflicted with contagious diseases.

The active medical staff consists of a "head physician" and surgeon, an attending physician, an attending surgeon, and a house physician, all of whom, by the rules, must be women. There is a consulting staff of men.

The material of this hospital was formerly the main reliance for clinical teaching for students of the Woman's Medical College, with which it was, prior to a year ago, associated; but since the separation of the two institutions, and the location of the college half a mile to the south and near the County Hospital, the value of the institution as a clinical field has greatly decreased.

The "Woman's Hospital of the State of Illinois" is a small hospital situated in the south division of the city, and devoted exclusively to the treatment of gynæcological cases, no class of general cases being admitted. It has accommodations for twelve patients. It was organized soon after the great fire.

The active medical staff consists of a surgeon-in-chief, four assistant surgeons, two assistant physicians, an electrician, and a resident physician, who is a woman. On the last mentioned devolves the duties of matron. There is a consulting staff of eight.

The city of Chicago maintains a small-pox hospital, which, fortunately, it is usually able to keep nearly or quite empty. During the past winter, however, a slight epidemic of variola has made this a very important institution. This hospital is attended by the city physician.

During the hot summer weeks of 1876 and 1877 a floating hospital has been maintained by an association incorporated for the purpose. During the time the hospital is in operation the sick — chiefly children of the poor — with mothers and nurses are taken each day in a tug to a schooner anchored half a mile from the shore of the lake, and there kept several hours to get what benefit may come from such a change of air and scene. It is the belief of many of our practitioners that very great benefit was received by little patients with bowel disorders from these hospital excursions.

In 1872 the Chicago Relief and Aid Society, out of funds contributed in view of the great loss by our fire of 1871, endowed beds in a number of our hospitals at one thousand dollars each, the stipulation being that for every contribution of this sum the society should have perpetual right to the free maintenance of one patient. The number of beds endowed in the respective hospitals is as follows: Mercy, forty; St. Joseph's, thirty-eight; St. Luke's, twenty-eight; Women and Children, twenty-five; the Alexian Brothers, eighteen. The society rarely has its quota of beds in these hospitals full, and great care is exercised by the superintendent to treat the institutions with perfect fairness. On November 3, 1876, the society had in hospitals twenty-two patients; on November 3, 1877, only thirteen.

CHICAGO, *April*, 1878.

COMPARATIVE MORTALITY-RATES.

	Estimated Population, July 1, 1878.	Deaths during week ending May 18, 1878.	Annual Death-Rates per 1000 living.		
			For the Week.	For the Year 1877.	Mean for ten Years, '68–77.
New York.	1,093,171	470	22.35	23.42	28.71
Philadelphia.	876,118	279	16.56	18.80	21.54
Brooklyn.	549,438	195	18.46	21.51	25.50
Chicago.	460,000	122	13.79	17.83	22.39
Boston.	375,476	123	17.03	20.10	24.34
Providence.	100,000	24	12.48	18,81	19.20
Lowell.	55,798	25	23.29	19,09	22.50
Worcester.	54,937	11	10.32	14.07	22.30
Cambridge.	53,547	17	16.50	18.69	20.83
Fall River.	53,207	11	10.75	21.35	24.96
Lynn.	35,528	10	14.64	20.42	19.67
Springfield.	33,981	7	10.72	16.02	19.77
Salem.	27,140	9	17.24	20.38	21.15

QUERY. — MR. EDITOR: Observing among the book notices in the *American Journal of the Medical Sciences* for January, 1878, a criticism on Dr. Wylie's Hospitals, a Boylston Prize Essay for 1876, published by Appleton & Co., New York, I read the following: —

"Again, on page 127 we are told that 'carbonic acid gas [in the breath] being of a higher specific gravity than air sinks to the floor.' Such a statement might be expected in a circular advocating a patent ventilator, but is melancholy reading in a Boylston Prize Essay. What possible respect can be had for opinions on ventilation which are based on such a statement as this?"

Living, as I do, several thousand miles from where the great source of light shines on the summits of the Alleghanies must be my reason for asking information on a subject of such vast importance. I thought Dr. Black had *fixed* this principle of carbonic acid at the time he discovered "fixed air," —about one hundred years ago. When I was a student, some thirty years since, I remember seeing our professor of chemistry fill some jars with respired air. A burning candle then being inserted it "went out," and he told us there was carbonic acid gas in the jar as the result of respiration. I have also heard and read something about a "Black Hole," as it was called, in Calcutta, with which every pupil in chemistry classes for the last one hundred years must be familiar. That was a "melancholy" affair; but what there is about this statement of Dr. Wylie in his essay that makes it "melancholy reading" some of the less favored and less enlightened members of the medical profession would like to know. Will not our reviewer of this book, whose initials are J. S. B., please explain?

I do not know Dr. Wylie or J. S. B., but sometimes I have visited hospitals, school-rooms, and other places where there was an abundance of respired air, and have often tried to explain to building committees and architects the advantage of some plan in ventilation which would dispose of this kind of air from the bottom of the room. I have no interest in any patent ventilator, but only in the truth, in regard to this matter. Hence I would be glad of enlightenment from J. S. B. or any one else. C. L. A.

SANTA CRUZ, CAL.

THE next regular meeting of the Gynæcological Society of Boston (the ninety-first) will be postponed till the second Thursday of June, in order to give members an opportunity to attend the meetings of the American Medical Association at Buffalo.

American Medical Association. — At the meeting to be held in Buffalo, June 3d, 4th, and 5th, the following papers will be read before the gynæcological section: —

(1.) Address of Edward W. Jenks, M. D., of Detroit, Mich., chairman of the section, on the Causes of Sudden Death of Pregnant and Puerperal Women.

(2.) Forcible Dilatation of the Urethra in the Treatment of Inflammation of the Female Bladder, by W. H. Byford, M. D., of Chicago, Ill.

(3.) Battey's Operation for the Extirpation of the Ovaries, by George J. Engelmann, M. D., of St. Louis, Mo.

(4.) Ovotomy, by Theophilus Parvin, M. D., of Indianapolis, Ind.

(5.) Digest of Fifty Cases of Uterine Fibroids treated by Electrolysis, by E. Cutter, M. D., of Cambridge, and G. Kimball, M. D., of Lowell, Mass.

(6.) Hour-Glass Contraction of the Uterus prior to the Expulsion of the Child, by T. A. Reamy, M. D., of Cincinnati, Ohio.

(7.) The Frequently Gynæcological Origin of Inherited Form of Strumous Disease, by Horatio R. Storer, M. D., of Newport, R. I.

(8.) Description of a New Clamp for Perinæorraphy, by W. W. Munson, M. D., of Utica, N. Y.

Papers are also expected by Dr. Mundé, of New York, Dr. Chadwick, of Boston, and others, the titles of which have not been received.

Henry O. Marcy, M. D., *Secretary of the Section.*

Association of American Medical Editors. — The regular annual meeting of this association will be held on Monday evening, June 3, 1878, at the Tifft House, Buffalo, N. Y. All editors of American medical journals are eligible for membership, and are cordially invited to be present and participate in the meeting.

F. H. Davis, M. D., *Permanent Secretary.*

Medical Society of Kings County. — A meeting was held on Tuesday evening, May 21st, at eight P. M., at Everett Hall, 398 Fulton Street, Brooklyn. The following papers were presented: —

A Case of Extra-Uterine Fœtation, by Dr. C. H. Giberson.

Dr. G. M. Garland, assistant in physiology, medical department Harvard University, read a paper on Pneumono-Dynamics.

Sanitary Work of the Brooklyn Board of Health, by Dr. J. H. Raymond.

Treatment of Lacerations of the Cervix Uteri, by Dr. A. J. C. Skene. (Read by title.)

A vote of thanks was passed to Dr. Garland for his paper.

The reading-room is open daily, except Sunday, from ten A. M. to ten P. M. Eighty periodicals are regularly on file. G. A. Evans, M. D., *Assistant Secretary.*

449 Bedford Avenue, Brooklyn, N. Y.

Boston Society for Medical Observation. — A regular meeting of the society will held on Monday evening next, June 3d. Dr. F. W. Draper will read a paper on the Post-Mortem Diagnosis of Certain Forms of Asphyxia.

Books and Pamphlets Received. — Medical Women: A Statement and an Argument. By Charles West, M. D. London: J. & A. Churchill. 1878.

Ninth Annual Report of the State Board of Health of Massachusetts. January, 1878.

The Paralyses of Pott's Disease, being a Clinical Study of Fifty-Eight Cases. By V. P. Gibney, A. M., M. D. (Chicago Journal of Nervous and Mental Diseases, April, 1878.)

Thirty-Fifth Annual Report of the Managers of the State Lunatic Asylum, Utica, N. Y., for the Year 1877–1878.

The Fifty-Fourth Annual Report of the Officers of the Retreat for the Insane at Hartford, Conn. April, 1878.

Twentieth Annual Report of the Washingtonian Home, 41 Waltham Street, Boston. April, 1878.

The Southern Negro as he is. By George R. Stetson. A. Williams & Co. 1877.

Amputations of the Cervix Uteri. By W. H. Nathan, M. D. Louisville. 1878.

Thirty-Second Annual Announcement of the Starling Medical College, Columbus, Ohio.

The Law of Population. Its Consequences and its Bearing upon Human Conduct and Morals. By Annie Besant. New York: Asa K. Butts. 1878.